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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/541,354	03/31/2000	Raphael Yair	32-NM-5321	3181

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Patrick S Yoder  
7915 FM 1960 West Suite 330  
Houston, TX 77070

EXAMINER

FETZNER, TIFFANY A

ART UNIT PAPER NUMBER

2859

DATE MAILED: 03/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

*Supplemental* **Notice of Allowability**

Application No.

09/541,354

Examiner

Tiffany A. Fetzner

Applicant(s)

YAIR ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/05/2005.
2. ☒ The allowed claim(s) is/are 10-23 and 25-28.
3. ☒ The drawings filed on 03/31/2000 See attached approved Figs. are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>05/05/2004</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                                 | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

***Response to Post allowance IDS filed Before payment of Issue Fee***

1. Applicant's request for consideration of IDS filed May 5<sup>th</sup> 2004 has been noted.
2. The information disclosure statement (IDS) submitted on May 5<sup>th</sup> 2004 was filed after the mailing date of the Allowance on April 19<sup>th</sup> 2004, with the appropriate fee and a certificate of mailing prior to the payment of issue fee on July 12<sup>th</sup> 2004, therefore the submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

**Examiner's Comment**

3. The examiner notes that **claims 4, 24** were canceled as per applicant's April 3rd 2002 response.

**Drawings**

4. The drawings filed 31 March 2000 have been approved by the examiner and the official draftsman.

The following is an examiner's supplemental statement of **Reasons for Allowance**:

5. The **examiner amended independent claims 10, 18, and 23** from the April 19<sup>th</sup> 2004 Examiner's Amendment are still considered to be allowable over the prior art of record, including the IDS (abstracts only) of the May 5<sup>th</sup> 2004 post allowance IDS submission of Japanese abstracts: JP 10-179540 dated 07/07/1998 & JP 10-080413 dated 31/03/1998 from the European Patent Office because the newly cited EP English abstracts of the Japanese citations **still fail** to teach or suggest the novel and non-obvious feature contained within each of the examiner amended claims from the April 19<sup>th</sup> 2004 examiner amendment of "the switching device having a conductive state during a first portion of the first pulse of the pulse sequence, the first portion **dependent only on the magnitude of a current applied to the gradient coil assembly by the driving amplifier**; in combination with each of the other claimed limitations. It is the combined combination of every feature claimed that comprises the novelty in each of applicant's independent claims, and it the combination of limitations that distinguishes applicant's application from the prior art.

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6. The **prior arts of record** do not teach, suggest, or show a MRI gradient assembly, that generates an MRI pulse sequence comprising a "switching device having a conductive state during a first portion of the first pulse of the pulse sequence, the first portion **dependent only on the magnitude of a current applied to the gradient coil assembly by the driving amplifier**; It would not have been obvious to one of ordinary skill in the art, at the time that the invention was made because in the prior art of record such as **Macovski et al.**, (**the switch assembly is not dependent only on the magnitude of a current applied to the gradient coil assembly by the driving amplifier**". In **Macovski et al.**, the switch assembly depends on signals received from many different sources including signals which are external to the gradient coil assembly (i.e. the external cardiac gating signals), and there is no teaching that the linearity of the switching device is improved by having the "switch assembly dependent only on the magnitude of a current applied to the gradient coil assembly by the driving amplifier". Applicant's examiner Amended independent claims require, in combination with the other features of the claims, that **the switch assembly is dependent only on the magnitude of a current applied to the gradient coil assembly by the driving amplifier**", this feature teaches away from what is known in the art, and is therefore considered to be both novel and nonobvious by the examiner.

7. With respect to **dependent claims 11-17**, which depend from **examiner amended independent claim 10**, **dependent claims 19-22**, which depend from **examiner amended independent claim 18** and **dependent claims 25-28**, which depend from **examiner amended independent claim 23** each of these claims are considered to be allowable by the examiner because they depend from an allowable **examiner amended independent claim**, therefore the same reasons for allowance, novelty and nonobviousness, that apply to **examiner amended independent claims 10, 18, and 23** also apply to **dependent claims 11-17, 19-22, and 25-28**, and need not be reiterated.

8. The examiner still agrees with the applicants arguments presented in the **January 22<sup>nd</sup> 2004 appeal brief**, as to the differences between the instant application and the prior arts of **Macovski et al.**, (i.e. that in **Macovski et al.**, switching is not based

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solely on the current between the MRI gradient coil assembly and the MRI driving amplifier because external signals, including cardiac gating signals, and pre-programmed routines also determine the state of the gradient switches), and **Van Groningen** (i.e. that the switching signals originate from components outside the circuitry components located between the MRI gradient coil assembly and the MRI driving amplifier). Therefore these references are no longer being applied as prior art against the claims of the instant application.

9. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **Prior Art made of Record**

10. The **prior art made of record** and not relied upon is considered pertinent to applicant's disclosure.

A) **Macovski et al.**, US patent 5,835,995 issued November 10th 1998; filed October 28th 1996.

B) **Van Groningen** US patent 6,140,873 issued October 31st 2000 with an effective filing date of July 28th 1999;

C) **Vavrek et al.**, US patent 5,311,135 issued May 10th 1994.

D) **Mansfield et al.**, US patent 4,820,986 issued April 11th 1989;

**Souza et al.**, US patent 6,144, 205 issued November 7th 2000 filed November 19th 1998.

E) **Schweighofer** US patent 6,034,565 issued March 7th 2000 filed July 21st 1998.

F) **Schweighofer** US patent 6,028,476 issued February 22 2000 filed July 21st 1998.

G) **Ideler** US patent 6,031,422 issued February 29 2000 filed August 4th 1998.

H) **Schweighofer** US patent 6,163,201 issued December 19th 2000 filed March 26th 1998.

I) **Wirth et al.**, US patent 5,270,657 issued December 14th 1993.

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**J) Rohan et al.**, US patent 5,684,402 issued November 4th 1997; which shows circuitry for an MRI device with a gradient power supply and an imaging method. The examiner notes that the features amended by applicant are also suggested by this reference.

**K) Rohan et al.**, US patent 5,521,507 issued May 28th 1996 which shows circuitry for an MRI device with a gradient power supply and an imaging method. The examiner notes that the features amended by applicant are also suggested by this reference.

**L) Davis** US patent 4,047, 235 issued September 6<sup>th</sup> 1997. This reference is relevant to **non-elected claims 1-3**, and **non-elected claims 5-9** only, as it shows switching based on only the current flowing between a source and a load.

**M) Cooke et al.**, US patent 5,528,444 issued June 18th 1996. This reference is relevant to **non-elected claims 1-3**, and **non-elected claims 5-9** only, as it shows switching based on only the current flowing between a source and a load.

**N) Unnewehr** US patent 3,697,839 issued October 10<sup>th</sup> 1972. This reference is relevant to **non-elected claims 1-3**, and **non-elected claims 5-9** only, as it shows switching based on only the current flowing between a source and a load.

**O) Feige** US patent 3,629,613 issued October 1<sup>st</sup> 1970. This reference is relevant to **non-elected claims 1-3**, and **non-elected claims 5-9** only, as it shows switching based on only the current flowing between a source and a load.

**P) Morgan** US patent 3,019,355 issued January 30<sup>th</sup> 1962. This reference is relevant to **non-elected claims 1-3**, and **non-elected claims 5-9** only, as it shows switching based on only the current flowing between a source and a load.

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### Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(703) 872-9306**.



TAF  
February 24, 2005



for Diego Gutierrez  
Supervisory Patent Examiner  
Technology Center 2800